

Q2 2022 Quarterly Progress Report Niagara Falls Water Board Order on Consent R9-20170906-129

Prepared for submission to:

New York State Department of Environmental Conservation Region 9
270 Michigan Avenue
Buffalo, New York 14203

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July 31, 2022



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Executive Summary

This document is the eighteenth (18th) quarterly progress report for the Niagara Falls Water Board (NFWB) Order on Consent R9-20170906-129 (Consent Order) as originally required by Schedule A Item 15 of the Consent Order. This progress report covers the period from April 1, 2022 through June 30, 2022.

During the past quarter, the NFWB has properly operated the wastewater treatment plant (WWTP) and has met all State Pollution Discharge Elimination System (SPDES) permit requirements with three exceptions for alpha-BHC (alpha-Hexachlorocyclohexane) in April, May, and June 2022. Solids processing (settling, thickening, dewatering) during this period has functioned as intended. Primary effluent is clean which has allowed the WWTP's activated carbon filters to efficiently process the plant's influent flow. Dewatering throughput during this period has kept up with incoming solids, compared to influent solids loadings. The WWTP was operated free of significant odors during the past quarter.

Maintenance activities during the reporting period have been ongoing, and as of the end of the quarter major treatment systems and components are functional. The WWTP is undertaking a number of capital upgrades and improvements that are within the capability of the WWTP's maintenance staff and/or contractors awarded service contracts. In addition to the projects being undertaken by the WWTP's staff and outside contractors, project planning, design, and construction of \$27 million in major capital upgrades are taking place. Engineering contracts are in place for eleven (11) of the twelve (12) capital projects (Projects 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, and 12) and one (1) of the capital projects has been completed by plant maintenance staff with assistance from an outside contractor under the mechanical services contract (Project 8). Construction of capital Projects No. 4 (GAC Changeout), No. 6 (Effluent Disinfection), No. 8 (Replacement of Blower Equipment) and No. 9 (Process Piping) are complete. Construction is underway on Projects 1, 2, 3, 5 (portions), 7, 10, and 11.

The NFWB has met all scheduled requirements of the Consent Order as identified in Schedule A of the Consent Order. Specific submissions during the past quarter include:

- The seventeenth (17th) quarterly report for the first quarter of 2022 (Q1 2022) was submitted April 30, 2022 to the New York State Department of Environmental Conservation (NYSDEC) and posted on the NFWB's website (Consent Order Item 15).

The NFWB is committed to working cooperatively and openly with the NYSDEC to improve the Niagara Falls WWTP and operate it to the best of its capability.

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1. WWTP Performance

This section discusses the operation of the NFWB WWTP during the reporting period of April 1, 2022 through June 30, 2022. In the following sections, Treatment Plant Operations, Solids Removal Performance, and Treatment Plant Equipment Readiness are discussed.

1.1 Treatment Plant Operations

Mr. Dennis Kirkland has been appointed to the position of Chief Operator of the wastewater treatment plant as of January 4, 2022. Until such time as Mr. Kirkland achieves the necessary operator's license, Mr. Fred Kasper (New York State Grade 4 licensed Operator 12489) is serving as the licensed plant operator. Mr. Kasper spends 4 hours per day on average at the facility on a Monday through Friday basis and assists Mr. Kirkland with his duties. During the reporting period there were three reported SPDES permit excursions related to a low-level detection of alpha-BHC in April, May, and June of 2022. This is an ongoing issue since the facility's SPDES permit limits for alpha-BHC were lowered on October 29, 2021. Solids processing has kept up with the incoming solids, and equipment maintenance and repair activities have been conducted as promptly as possible.

Sodium hypochlorite consumption has increased due to warm weather and has ranged from 9,600 gallons per day (April) to 13,900 gallons per day (June). The practice of chlorinating the primary effluent was discontinued due to an issue with the sodium hypochlorite pipeline to the primary effluent channel. The replacement pipeline is ready to be used but has not yet been placed into service. It will likely be used in Q3 2022 if sodium hypochlorite usage continues to increase. Chlorination of the filter backwash water continues to be practiced.

Another operational modification which continues to be practiced is to stage a number of the off-line carbon filters in an empty condition. The number of filters being left empty has been increased to 14 filters (from 12) and is accomplished by taking an entire bank of filters (A-Train or B-Train) offline and draining them. This practice is believed to increase the filter run time and therefore reduce the number of filter backwashes per day. As a result of these practices, the number of filter backwashes per day continues to be in the range of 20 to 40 backwashes per day; and all backwash water continues to be directed to the head of the plant where it is retreated through the sedimentation basins and carbon filters. The plant has operated continuously in this mode without any incidence of 100-foot weir flow since the practice was initiated on February 3, 2020. As of the end of Q2 2022 Sedimentation Basin No. 5 remains under construction to install new chain and flight sludge collectors as part of capital project number 1 and is expected to be operational (without automation) in early Q3 2022.

1.2 Solids Removal Performance

A solids balance for April, May, and June 2022 is presented in Table 1. The data is based upon effluent flow meter measurements and influent/effluent total suspended solids sample results generated by the facility. The data shows that the quantity of solids sent to the landfill has met or exceeded the

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amount of solids removed from the wastewater plus chemical solids added (ferric chloride and lime). Results near or greater than 100% generally indicate the plant is operating as intended.

Influent suspended solids have continued to be much lower than historical averages. This trend began in November 2021 and continues through the present date. The reduction in influent suspended solids appears to correlate with major reductions in suspended solids discharged from a significant industrial user. For example, during the period January through October of 2021 influent TSS averaged 415 dry tons per month (DTPM) versus the period November 2021 through March 2022 when influent suspended solids averaged 175 DTPM. During the period April 1, 2022 through June 30, 2022, the average influent suspended solids was 164 DTPM.

1.3 Treatment Plant Equipment Readiness

During the reporting period there were several treatment plant equipment breakdowns that required maintenance staff to repair or replace equipment. Minor repairs have been made this past quarter for pumps, belt filter presses, and sedimentation basin equipment to address issues that have arisen. Although these repairs may have kept equipment out of service for periods of time during the past quarter, it has not significantly affected the plant performance. In general, a sufficient number of sedimentation basins with fully functional sludge removal equipment have been available to treat all incoming flows. As of the close of Q2 2022, the following can be said regarding treatment equipment operability:

- Four (4) Main Pumps are operational.
- Four (4) Intermediate Pumps are operational and control/VFD issues are being monitored. A project to evaluate the intermediate pumps, motors, drives, and controls has been awarded and that project is underway.
- Three of the five sedimentation basins are functional, with Sedimentation Basin No. 4 and 5 out of service for construction. If necessary, one of these basins could be utilized for wet weather flow management. During the past quarter, two (2) sedimentation basins have been used for flows up to 40 mgd, three (3) basins used for flows between 40 mgd and 60 mgd, and four (4) basins for flows over 60 mgd.
- Twenty-eight (28) activated carbon filters are functional.
- The filter backwash system is functional including two backwash pumps and two air scour blowers.
- Three (3) belt filter presses and related equipment (sludge and polymer feed pumps) are operational.
- Two (2) pugmills, two (2) lime feed systems, and two (2) lime storage silos are fully functional.

Table 1
Q2 2022 NFWB WWTP Solids Balance

Month & Year	Average Daily Flow mgd	Average Influent TSS mg/l	Average Effluent TSS mg/l	TSS Removed (Dry) Tons/day	Ferric Chloride Added to Wastewater (Dry) Tons/day	Lime Added to Sludge (Dry) Tons/day	Total Solids (Dry) (TSS + Lime + Ferric) Tons/day	Solids Content of Landfilled Sludge %	Total Solids (Wet) Tons/day	Solids Landfilled (DRY) Tons/day	% Landfilled
Apr-22	24.9	61.5	5.3	5.8	1.48	1.83	9.2	26.3%	34.8	9.2	101%
May-22	22.9	64.1	7.3	5.4	1.51	1.84	8.8	24.3%	36.1	12.0	136%
Jun-22	21.1	66.7	8.0	5.2	1.43	0.85	7.4	26.7%	27.9	9.11	123%

NOTES: mgd million gallons per day
TSS Total Suspended Solids

¹ % greater than or equal to 100 indicates all incoming solids plus all chemicals added are removed and sent to landfill.

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2. Deliverables and Routine Communications

This section presents a listing and discussion of deliverables prepared by the NFWB for submission to the NYSDEC. In addition, other related written communications between the NYSDEC and the NFWB are also discussed.

2.1 Deliverables Status

All deliverables required under the consent order have been submitted to the NYSDEC in accordance with the schedule in the Consent Order. Deliverables submitted during the past quarter are listed in Table 2.

Table 2
NFWB Submissions to NYSDEC per Schedule A of the Consent Order

Date	Prepared By	Consent Order Schedule A Items	Comment
April 30 ,2022	AECOM	Item 15	The seventeenth quarterly progress report for the first quarter of 2022 (Q1 2022) was submitted.

2.1.1 Existing WWTP Optimization Efforts

Upon completion of construction of Sedimentation Basin No. 5, the plant will likely use Sedimentation Basin No. 5 as a treatment basin and will continue to direct filter backwash water to the head of the plant for retreatment through the sedimentation basins and carbon filters. This will likely continue until such time as all five (5) sedimentation basins are completed under Capital Project 1.

2.2 Deliverables in Next Quarter

All deliverables required under the Consent Order have been submitted. No other deliverables are pending or due under the consent order other than this quarterly report.

2.3 Routine Communications in Past Quarter

A meeting was held with the NYSDEC Region 9 on June 23, 2022 to discuss the Notice of Violation (NOV) issued June 3, 2022 regarding dry weather overflows at the Gorge Pumping Station as a result of complications with capital project No. 2 (GPS Upgrades).

2.4 Unresolved Issues/Delays

There are no unresolved issues or delays.

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3. Capital Improvement Program

In this section, progress on WWTP capital upgrades is discussed. Capital upgrades are proceeding on several fronts. Projects that are within the capability of in-house maintenance staff are being undertaken as quickly as possible. Additionally, outside contractors selected for WWTP work (Mechanical Contractor – Mollenberg Betz, Electrical Contractor – Ferguson Electric) are being utilized for larger projects. Lastly, design and construction are underway to perform a number of capital upgrades that are necessary to stabilize the operation of the existing treatment plant. Each of these items is discussed in this section.

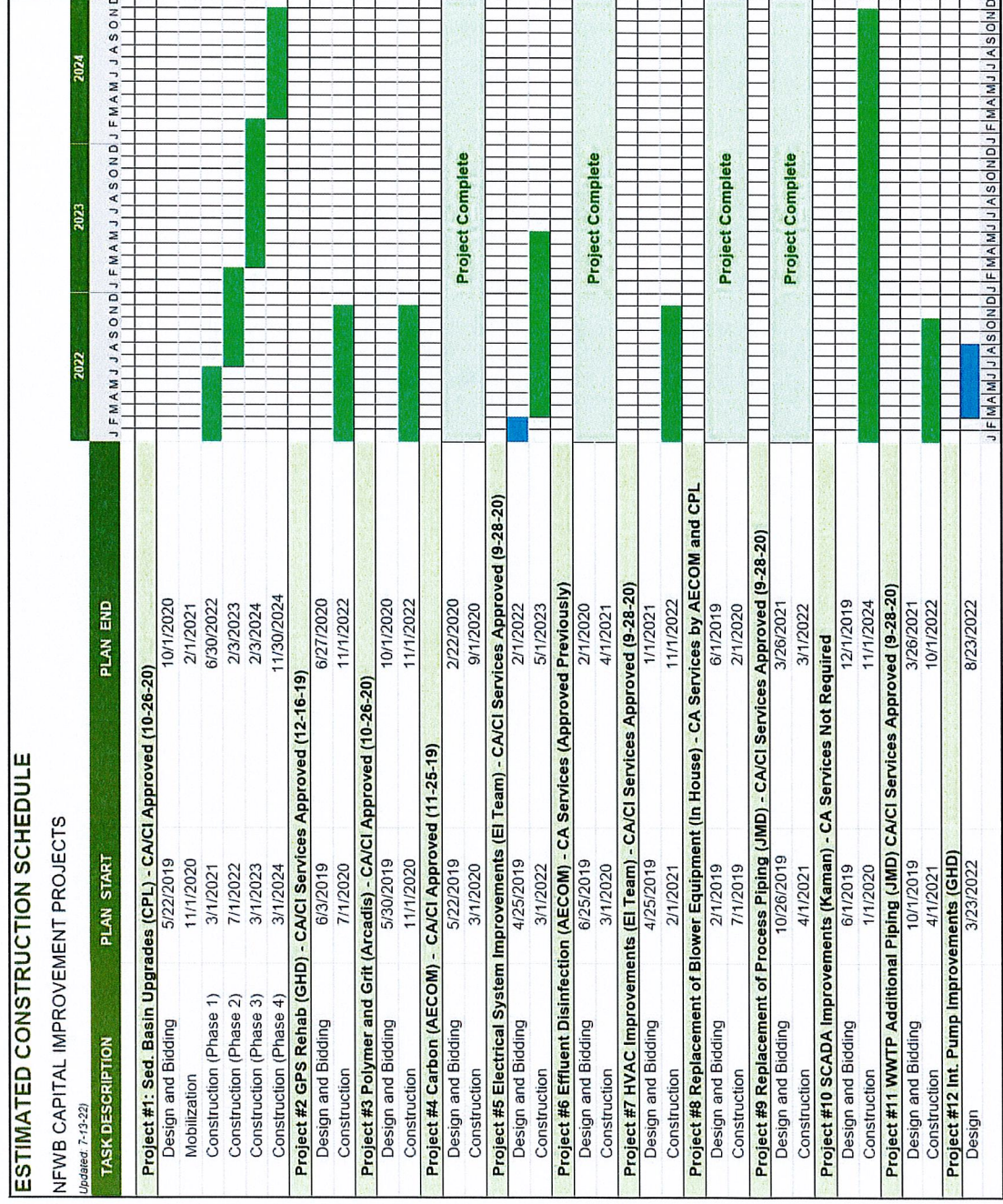
3.1 In-House Capital Upgrades Completed/Underway

This category of projects includes work being undertaken by plant maintenance staff or outside contractors without the need for extensive design and engineering documents. This work is generally considered repair and/or replace in kind and therefore NYSDEC approval is not generally required prior to performing the work. At this time all work slated to be performed in-house has been performed.

3.2 Capital Improvement Projects

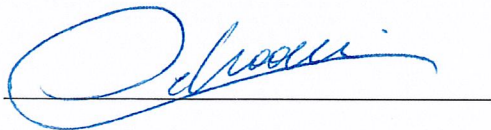
A schedule for the ongoing capital projects is shown in Figure 1.

Figure 1
Capital Projects Estimated Construction Schedule



I certify under penalty of law that the letter from John T. Kolaga, Esq., Rupp Baase Pfalzgraf Cunningham LLC, and the enclosed Q2 2022 Quarterly Progress Report, Niagara Falls Water Board Order on Consent R9-20170906-129 prepared by AECOM dated July 31, 2022, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Niagara Falls Water Board



Name: Dr. Abderrahman Zehraoui

Title: Executive Director

Date: 7.20.22